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Claims

1. A turbine engine with a turbine shaft which has a number of disks arranged adjacent to one another, to each of which a number of moving blades are attached in a star arrangement, wherein these moving blades can be cooled with at least one coolant which flows through coolant channels inside the moving blades, characterized in that multiple cavities are enclosed between two directly adjacent disks in a radial direction, said cavities in each case encompassing the turbine shaft in a circumferential direction and in which coolants are present at differing pressures, wherein the coolant or coolants can in each case flow into and out of the cavities.
2. A turbine shaft according to Claim 1, characterized in that the radially adjacent cavities are sealed from one another.
3. A turbine shaft according to Claim 1 or 2, characterized in that the integrated coolant channels of each and every moving blade arranged on one and the same disk communicate with one and the same cavity, which is enclosed by means of an adjacent disk, via a radial bore or passage.
4. A turbine shaft according to one of Claims 1 to 3, characterized in that at least one of the cavities communicates with a coolant supply or coolant discharge.
5. A method for cooling a turbine engine in accordance with one of Claims 1 to 4, characterized in that the pressure of the coolant which flows through a cavity is greater than the pressure of the coolant which flows through the radially outwardly adjacent cavity.

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6. A method for cooling a moving blade of a turbine engine according to Claim 5 characterized in that

- 5 live steam flows in the innermost cavity, used steam in the next radially outwardly adjacent cavity and fresh air in the next radially outwardly adjacent cavity.